

Att'y Dkt. No.: 10010902-1
USSN: 10/022,065

IN THE SPECIFICATION

Please amend the paragraph bridging pages 7 and 8 as follows:

As summarized above, the subject invention provides non-contact fluid deposition device for depositing fluid onto the surface of a substrate. The subject devices are characterized in that they include a printhead adjuster that includes a single rigid frame holding at least one printhead housing. A feature of the printhead adjusters of the subject invention is that each of the one or more printhead housings is adjusted in, i.e., moved relative to, the single rigid frame with a set of axis adjustment elements, which set includes a rotational axis adjustment element for each horizontal and/or vertical axis adjustment element in the set, e.g., rotational theta about X for X; rotational theta about Y for Y and rotational theta about Z for Z. Typically, each set includes at least one horizontal adjustment element and a vertical adjustment element, where the set further includes a rotational axis adjustment element for each horizontal and vertical axis adjustment element of the set. Often, each set includes two horizontal axis adjustment elements, e.g., an X and Y axis adjustment element; and one vertical axis adjustment element, e.g., a Z axis adjustment element. By axis adjustment element is meant a single component, e.g., a screw component as discussed in greater detail below, or two or more components, e.g., multiple screw elements, that work in combination to move or adjust position in a given axis, e.g., move in the same direction to adjust position.

Please amend the paragraph at page 11, beginning at line 13 as follows:

The printhead housing component of the subject printhead adjusters is a housing structure designed to hold/secure a printhead or assembly thereof, such that the printhead is held by the printhead adjuster which in turn is held by a translational arm of a fluid deposition device according to the subject invention. The housing is therefore configured to engagingly fit with or connect to a printhead or assembly thereof. In principle, the housing is configured to fit with any type of printhead assembly, including pulse jet assemblies, such as piezoelectric and thermal pulse jet assemblies. In many embodiments, the printhead housing is configured to engagingly secure or hold a multiple printhead die/multiple reservoir printhead assembly as described in copending United States

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application serial no. 10/022,088 (~~attorney docket no. 10010820-1, filed on even date herewith~~) the disclosure of which is herein incorporated by reference.

Please amend the paragraph at page 14, beginning at line 14 as follows:

Also of particular interest in many embodiments are fluid deposition devices where the subject printhead adjusts hold one or more multiple printhead die/multiple reservoir printhead assemblies, as described in U.S. Patent Application serial no. 10/022,088 (~~attorney docket no. 10010820-1 titled "Pulse Jet-Print Head Assembly Having Multiple Reservoirs and Methods for Use in the Manufacture of Biopolymeric Arrays filed on even date herewith~~); the disclosure of which is herein incorporated by reference. These printheads are characterized by having a multiple printhead die printhead and a multiple reservoir housing affixed to the multiple die printhead.

Please amend the paragraph at page 16, beginning at line 17 as follows:

Alternatively, where minimal waste of the fluid sample desired, e.g. where the fluid is an expensive or rare cDNA sample, the following "front loading" method of loading the fluid sample into the firing chamber and reservoir may be employed. In this method of fluid sample loading, the orifice is contacted with the fluid under conditions sufficient for fluid to flow through the orifice and into the firing chamber of the head, where fluid flow is due, at least in part, to capillary forces. To assist in the flow of fluid into the orifice, back pressure in the form of suction (i.e. negative pressure) may be applied to the firing chamber (and reservoir, if present) of the head, where the back pressure will typically be at least about 5, and may be at least about 10 and even as great as about 100 inches of H₂O or more. In general, each firing chamber (and reservoir with which it is in fluid communication, if present) is subjected to the same back pressure. For a further description of this front loading procedure, see e.g., U.S. Patent No. 6,323,043 Application Serial No. ~~U.S. SN-09/302922~~; the disclosure of which is herein incorporated by reference.

Please amend the paragraph bridging pages 21 and 22 as follows:

A feature of the subject invention is that before fluid loading and/or deposition as described above, the one or more printheads held in the frame are

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adjusted using the printhead housing's set of individual axis adjustment elements. For example, in the representative printhead adjuster shown in Figure 4 3, the printhead housing is adjusted in the X direction by turning the two side screws 910a and 910b by the same amount. The printhead housing is adjusted in the Y direction by turning the one front screw 920 by an appropriate amount. The printhead housing is adjusted in the Z direction by turning the three top screws 930a, 930b and 930c by the same amount. The printhead housing is adjusted in the theta about X direction by turning the rear top screw 930c in one direction and the front two top screws 930a and 930b in the opposite direction by the same amount. The printhead housing is adjusted in the theta about Y direction by turning the inner top screw 930a in one direction and the outer two top screws 930b and 930c in the opposite direction by the same amount. The printhead housing is adjusted in the theta about Z direction by turning the one side screw, e.g., 920 in one direction, and the other side screw(s), e.g., 910a and 910b, in the opposite direction by the same amount.